

Notice of Allowability

Application No.

10/809,080

Examiner

Adolf Berhane

Applicant(s)

AZRAI ET AL.

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed on 6/14/05.
2. ☒ The allowed claim(s) is/are 1-55.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

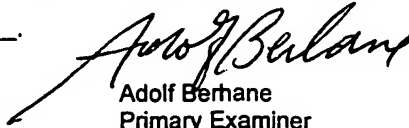
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 1/10/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Adolf Berhane
Primary Examiner
Art Unit 2838

1. Claims 1-55 are allowed over the cited prior art.
2. The following is an examiner's statement of reasons for allowance: None of the prior art of record disclose or teach a switched capacitor:

Claim 1 with a plurality of connective structures, each selected one of which plurality of connective structures being disposed to connect each selected one of the plurality of semiconductor switches to the one or more selected ones of the plurality of thin-film capacitors while being disposed substantially along one of a plurality of respective axes that are disposed in an orientation that is substantially normal to the first plane,

Claim 20 with a plurality of conducting structures connecting a plurality of respective terminals of the charging and discharging transistors to respective ones of the capacitor electrodes, the conducting structures having an equivalent series resistance of less than 10 milliohms,

Claim 31 by applying an output current from the capacitors through a plurality of discharging transistors on the integrated chip, the discharging transistors arranged in a layout such that a plurality of respective terminals of the respective discharging transistors are disposed above a portion of a plurality of respective electrodes of the plurality of capacitors,

Claim 32 with a controller operatively connected to all of the transistors, the controller operative to switch the transistors between a first charging mode in which all of the P4 and P5 transistors in the phase are de-activated, and a second discharging mode in which all of the P1 and P2 transistors in the phases are de-activated,

Claim 42 a method in response to a higher desired voltage at a substantially constant load current, allocating at least one additional switched-capacitor phase to the load or removing an at least one capacitor block from at least one of the switched-capacitor phases, in response to a lower desired voltage at a substantially constant load current, de-allocating at least one of the switched-capacitor phases or adding at least one capacitor block to an at least one switched capacitor phase,

Claim 45 a method in which after de-activating the P1 and P2 transistors in each phase, activating a P3 transistor connecting a negative terminal of each of the capacitors to ground; and after activating the P3 transistors, activating a P4 transistor connecting a negative terminal of each of the capacitors to ground and activating a P5 transistor connecting the positive terminal of at least one of the capacitors to an output terminal and

Claim 48 with a control stage operatively connected to all of the switches, the control stage operative to activate and de-activate selected ones of the switches of a selected phase to change between a first charging mode and a second discharging mode, the control stage operative to activate selected ones of the voltage-shifting switches of the selected phase prior to activating selected ones of the second discharging switches switches.

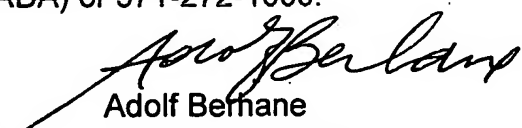
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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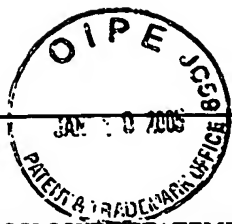
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adolf Berhane whose telephone number is 571-272-2077. The examiner can normally be reached on Monday- Friday 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Adolf Berhane
Primary Examiner
Art Unit 2838



Sheet 1 of 3

Form PTO-1449 (Modified)
(Rev. 11/92)U.S. Dept. of Commerce
Patent and Trademark Office**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(Use several sheets if necessary)

(37 CFR 1.98(b))

ATTY. DOCKET NO.

301-001

SERIAL NO.

10/809,080

APPLICANT

Firas Azrai, et al.

FILING DATE

March 25, 2004

GROUP

2838

U.S. PATENT DOCUMENTS

*Examiner Initial	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date (if appropriate)
AB	US 6,643,151	11/04/2003	Nebrigic, et al.	363	59	
	US 6,636,104	10/21/2003	Henry	327	536	
	US 6,600,296	07/29/2003	Hazucha	323	237	
	US 6,563,235	05/13/2003	McIntyre, et al.	307	109	
	US 6,486,728	11/26/2002	Kleveland	327	536	
	US 5,952,952	09/14/1999	Choi, et al.	341	172	
	US 5,642,073	6/24/1997	Manning	327	536	
	US 5,581,454	12/03/1996	Collins	363	59	
	US 5,301,097	04/05/1994	McDaniel	363	60	
	US 5,008,799	04/16/1991	Montalvo	363	60	
	US 4,128,771	12/05/1978	Domenico	307	52	
	US 5,414,614	05/09/1995	Fette, et al.	363	59	
	US 5,493,249	02/20/1996	Manning	327	540	
	US 5,553,030	09/03/1996	Tedrow, et al.	365	226	
	US 5,594,324	01/14/1997	Canter, et al.	323	282	
	US 5,627,460	05/06/1997	Bazinet, et al.	323	288	
✓	US 5,680,300	10/21/1997	Szepesi, et al.	363	59	

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

Document Number	Date	Country	Class	Subclass	Translation	
					Yes	No

**OTHER DOCUMENTS
(INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)**

EXAMINER

Adolfo Berland

DATE CONSIDERED

9/25/08

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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U.S. PATENT DOCUMENTS

*Examiner Initial	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date (if appropriate)
<i>AB</i>	US 5,717,318	02/10/1998	Matsuda, et al.	323	273	
	US 5,734,291	03/31/1998	Tasdighi, et al.	327	537	
	US 5,952,733	09/14/1999	Johnston	307	44	
	US 5,959,853	09/28/1999	Kos	363	59	
	US 5,973,944	10/26/1999	Nork	363	60	
	US 6,055,168	04/25/2000	Kotowski, et al.	363	60	
	US 6,115,266	09/05/2000	Matsui, et al.	363	21.13	
	US 6,169,673	01/02/2001	McIntyre, et al.	363	59	
	US 6,169,680	09/02/2001	Matsui, et al.	363	21.05	
	US 6,181,123	01/30/2001	Jou, et al.	323	351	
	US 6,184,594	02/06/2001	Kushnarenko	307	109	
	US 6,198,645	03/06/2001	Kotowski, et al.	363	59	
	US 6,268,716	07/31/2001	Burstein, et al.	323	272	
	US 6,272,029	08/07/2001	Hirose	363	59	
	US 6,281,666	08/28/2001	Tressler, et al.	323	272	
	US 6,304,068	10/16/2001	Hui, et al.	323	288	
	US 6,304,467	10/16/2001	Nebrigic	363	49	

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

Document Number	Date	Country	Class	Subclass	Translation	
					Yes	No

**OTHER DOCUMENTS
(INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)**

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EXAMINER

Anthony Beland

DATE CONSIDERED

9/25/06

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Form PTO-1449 (Modified)
(Rev. 11/92)U.S. Dept. of Commerce
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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APPLICANT

Firas Azrai, et al.

FILING DATE

March 25, 2004

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(37 CFR 1.98(b))

U.S. PATENT DOCUMENTS

*Examiner Initial	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date (if appropriate)
A3	US 6,310,792	10/30/2001	Drobnik	363	147	
	US 6,320,796	11/20/2001	Voo, et al.	365	189.09	
	US 6,370,046	04/09/2002	Nebrigic, et al.	363	60	
	US 6,392,904	5/21/2002	Bayer, et al.	363	59	
	US 6,411,531	06/25/2002	Nork, et al.	363	60	
	US 6,414,863	07/02/2002	Bayer, et al.	363	60	
	US 6,429,632	08/06/2002	Forbes, et al.	323	282	
	US 6,438,005	08/20/2002	Walter	363	60	
	US 6,452,804	09/17/2002	Dibene, II, et al.	361	720	
	US 6,483,282	11/19/2002	Bayer	323	315	
	US 6,504,349	01/07/2003	Jaworski	323	280	
	US 6,512,411	01/28/2003	Meng, et al.	327	536	
	US 6,522,558	02/18/2003	Henry	363	60	
	US 6,661,683	12/09/2003	Botker, et al.	363	60	

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					Yes	No

OTHER DOCUMENTS

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Notice of References Cited

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Applicant(s)/Patent Under
Reexamination
AZRAI ET AL.

Examiner

Adolf Berhane

Art Unit

2838

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,573,695	06-2003	Shashoua, Meir	323/282
*	B	US-5,589,847	12-1996	Lewis, Alan G.	345/98
*	C	US-6,440,754	08-2002	Hayashi et al.	438/3
*	D	US-5,532,916	07-1996	Tamagawa, Akio	363/62
*	E	US-5,461,557	10-1995	Tamagawa, Akio	363/60
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.